CLAIMS

What is claimed is:

1. A retention apparatus comprising:

- a compression sleeve element:

- adapted to at least partially surround a first portion of a first elongated member and a second portion of a larger elongated member, wherein a third portion of said first elongated member is nested in at least a fourth portion of said larger elongated member, and
- having a first elongated member compression surface and a larger elongated member compression surface,

- wherein said third portion of said first elongated member has a first longitudinal axis and said at least a fourth portion of said larger elongated member has a second longitudinal axis,

- a compression enhancement element established so that, upon activation, it forces said:

- larger elongated member compression surface towards said larger elongated member, and
- said first elongated member compression surface towards a site on said first elongated member that is not within said larger elongated member,

said compression apparatus further comprising:

- a relative motion obstruction element adapted to prevent only axial and rotational motion of said compression sleeve element relative to said larger elongated member,
- wherein said third portion of said first elongated member and said at least a fourth portion of said larger elongated member are substantially coaxial,
- wherein said at least a fourth portion of said larger elongated member is hollow,

- wherein said relative motion obstruction element comprises at least one projection and at least one recess,
- wherein said compression sleeve element is separated along at least one split from a first elongated member proximate edge of the compression sleeve element to a larger elongated member proximate edge of the compression sleeve element, and
- wherein said compression sleeve element is perpendicularly displaceable and perpendicularly removable, relative to said second longitudinal axis, from said first elongated member and said larger elongated member upon deactivation of and effective disengagement of said compression enhancement element.

2. A retention apparatus as described in claim 1 wherein said at least one split is parallel to said first longitudinal axis.

3. A retention apparatus as described in claim 1 wherein said at least one split is two splits.

4. A retention apparatus as described in claim 3 wherein each of said two splits is parallel to said first longitudinal axis.

5. A retention apparatus as described in claim 1 wherein said at least one recess is a hole established in said larger elongated member.

6. A retention apparatus as described in claim 1 wherein said at least one projection is a post projecting inwardly from said compression sleeve element.

7. A retention apparatus as described in claim 1 wherein said at least one projection is a post projecting outwardly from said larger elongated member.

8. A retention apparatus as described in claim 1 wherein said compression enhancement element is a clamp having an eccentric cam.

9. A retention apparatus as described in claim 1 wherein said compression sleeve element is shaped to provide a clearance from said larger elongated member

between said first elongated member compression surface and said larger elongated member compression surface.

10. A retention apparatus as described in claim 1 wherein said compression enhancement element is at least partially integral with said compression sleeve element.

11. A retention apparatus as described in claim 1 wherein said third portion of said first elongated member has an outer surface sized to fit substantially against an inner surface of said at least a fourth portion of said larger elongated member.

12. A retention apparatus as described in claim 1 wherein said compression sleeve element is radially displaceable and radially removable.

13. A retention apparatus as described in claim 1 wherein each said first elongated member and said larger elongated member is hollow.

14. A retention apparatus as described in claim 1 wherein said first elongated member compression surface has a characteristic dimension that is less than a characteristic dimension of said larger elongated member compression surface.

15. A retention apparatus as described in claim 1 wherein effective disengagement of said compression enhancement element comprises local displacement of said compression enhancement element.

16. A retention apparatus as described in claim 1 wherein said deactivation of said compression enhancement element is achieved upon loosening a bolt of said compression enhancement element.

17. A retention apparatus as described in claim 1 wherein said deactivation of said compression enhancement element is achieved upon operation of a lever of said compression enhancement element.

18. A retention apparatus as described in claim 1 wherein said effective disengagement of said compression enhancement element is achieved after removal of a nut from a bolt and removal of said bolt from any holes through which it may pass.

19. A retention apparatus as described in claim 1 further comprising an annular gap filler.

20. A retention apparatus as described in claim 1 wherein said larger elongated member compression surface and said first elongated member compression surface each directly contact one of said elongated members.

21. A retention apparatus as described in claim 1 further comprising said elongated members.

22. A retention apparatus as described in claim 1 further comprising a support apparatus of which said retention apparatus forms a part.

23. A method comprising the steps of:

- establishing a compression sleeve element at least partially around a first portion of a first elongated member and a second portion of a larger elongated member; wherein a third portion of said first substantially elongated member nests within at least a fourth portion of said larger elongated member; then
- effectively engaging a compression enhancement element such that it may be subsequently activated so as to force a larger elongated member compression surface towards said larger elongated member and to force a first elongated member compression surface towards a site on said first elongated member that is not within said larger elongated member; then
- preventing only axial and rotational motion of said compression sleeve element relative to said larger elongated member by engaging at least one projection with at least one recess of a relative motion obstruction element; then
- adjusting said first elongated member to a desired position relative to said larger elongated member; then
- activating said compression enhancement element to force said larger elongated member compression surface towards said larger elongated member and to force

said first elongated member compression surface towards said site on said first elongated member that is not within said larger elongated member, thereby retaining said first elongated member in said desired position; then

- deactivating said compression enhancement element; then
- effectively disengaging said compression enhancement element; and then
- removing said compression sleeve element by displacing said compression sleeve element in a direction that is perpendicular to a longitudinal axis of said fourth portion of said larger elongated element.

wherein said fourth portion of said larger elongated member is hollow.

24. A method as described in claim 23 wherein said step of deactivating said compression enhancement element comprises the step of unclamping said compression enhancement element by operating a lever

25. A method as described in claim 23 wherein said step of deactivating said compression enhancement element comprises the step of loosening a bolt

26. A method as described in claim 23 wherein said step of effectively disengaging said compression enhancement element comprises the step of locally displacing said compression enhancement element

27. A method as described in claim 23 wherein said step of effectively disengaging said compression enhancement element comprises the step of removing a nut from a bolt and removing said bolt from holes through which it may pass.

28. A method as described in claim 23 wherein said step of effectively engaging a compression enhancement element comprises the step of placing a bolt through a hole and initiation threading of a nut.

29. A method as described in claim 23 wherein said step of effectively engaging a compression enhancement element comprises the step of effectively engaging a clamp around said compression sleeve element.

30. A method as described in claim 29 wherein said step of effectively engaging a clamp around said compression sleeve element comprises the step of effectively engaging a clamp having an eccentric cam.

31. A method as described in claim 29 wherein said step of effectively engaging a clamp around said compression sleeve element comprises the step of threading a bolt into a nut such that operation of said lever sufficiently retains said first elongated member in fixed position relative to said larger elongated member.

32. A method as described in claim 23 wherein said step of preventing only axial and rotational motion of said compression sleeve element relative to said larger elongated member by engaging at least one projection with at least one recess of a relative motion obstruction element comprises the step of engaging at least one projection on an inner surface of said compression sleeve element with at least one recess established on said larger elongated member.

33. A method as described in claim 32 wherein said at least one recess established on said larger elongated member is a hole in said larger elongated member.

34. A method as described in claim 23 wherein said step of adjusting said first elongated member to a desired position relative to said larger elongated member comprises the step of telescoping said first elongated member.

35. A method as described in claim 23 wherein said step of activating said compression enhancement element comprises the step of clamping said compression enhancement element.

36. A method as described in claim 23 wherein said step of activating said compression enhancement element comprises the step of threading a nut and bolt of said compression enhancement element.

37. A method as described in claim 23 wherein said step of effectively disengaging said compression enhancement element comprises the step of removing a bolt from holes through which it may pass.

38. A method as described in claim 23 wherein said step of effectively disengaging said compression enhancement element comprises the step of locally displacing said compression enhancement element.

39. A method as described in claim 38 wherein said step of locally displacing said compression enhancement element comprises the step of manually grasping said compression enhancement element and sliding it to expose said compression sleeve element.

40. A method as described in claim 23 wherein said step of removing said compression sleeve element comprises the step of separating two parts of said compression sleeve element that were oppositely established at least partially around a first portion of a first elongated member and a second portion of a larger elongated member.

41. A method as described in claim 23 wherein said step of removing said compression sleeve element by displacing said compression sleeve element in a direction that is perpendicular to a longitudinal axis of said fourth portion of said larger elongated element comprises the step of displacing said compression sleeve element in a radial direction relative to a longitudinal axis of said fourth portion of said larger elongated element.